

Amendment under 37 CFR §1.116  
Application No. 10/615,193  
Attorney Docket No. 000138A

RECEIVED  
CENTRAL FAX CENTER

JUL 03 2007

AMENDMENTS TO THE CLAIMS

This listing of claims replaces all prior versions of claims in the application.

1-4. (Canceled)

5. (Currently amended): A process for heating a thixocast Fe-based alloy material having a chilled structure into a semi-molten state in which solid and liquid phases coexist, the process comprising:

heating said Fe-based alloy material setting having a chilled structure from a room temperature to a point A<sub>1</sub> in an Fe-C based equilibrium diagram, wherein an average rate H<sub>R</sub> of heating from about a room temperature to a point A<sub>1</sub> in an Fe-C based equilibrium diagram is set to be in a range of 0.5°C/sec ≤ H<sub>R</sub> ≤ 6.0°C /sec, and setting a maximum temperature gradient T<sub>G</sub> of the inside of the Fe-based alloy material per unit distance is set to be at T<sub>G</sub> ≤ 7°C/mm; and

further heating said Fe-based alloy material into a semi-molten state in which solid and liquid phases coexist.

6. (Original): A process for heating a thixocast Fe-based alloy material according to claim 5, further setting a sonic velocity S<sub>v</sub> of said Fe-based alloy material determined by an ultrasonic velocity measurement to be at S<sub>v</sub> ≥ 5,600 m/sec.